

## REMARKS

Reconsideration of this application as amended is respectfully requested.

Applicants respectfully submit that the reference U.S. Pat. No. 6,511,048 is by Sohda, and not Bayan. Applicants believe the correct reference by Bayan is U.S. Pat. No. 6,551,048, this latter reference is used for discussion for the purpose of the response. Applicants respectfully request the correct reference Patent No. be made of record.

In the Office Action, claims 1-53 are pending. Claims 1-29 have been rejected.

In this response, no claim has been canceled. Claims 13, 20, 23, and 24 have been amended to particularly point out and distinctly claim, in full, clear, concise, and exact terms, the subject matter which Applicant regards as his invention. No new matter has been added by the amendments. No new claims have been added. Thus, claims 1-29 remain pending.

### **Rejections Under 35 U.S.C. § 112**

*The Examiner has rejected claims 13-15, 20-22, 24 and 29 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.*

Claim 13 has been amended to read "... in said relocating tool by an FSA devices... into said plurality of receptor sites." Applicants respectfully submit the amended claim is clear and definite and thus the rejection has been overcome. Claims 14-15 depend from claim 13 and incorporate all the limitations contained therein. For at least this reason, Applicants respectfully submit that claims 13-15 are now in compliance with 35 U.S.C. § 112 and respectfully request withdrawal of the claim rejections.

Claim 20 is amended to read "... comprising a second transfer tool ... wherein said second transfer tool is used to pick up ..." to clarify the subject matter as claimed. Applicants

respectfully submit that the amended claim is clear and definite and thus the rejection has been overcome. Applicants respectfully submit that the subject matter in claims 19-22 are supported by at least paragraph [0081] and Figures 12A, 12B in the specification.

Claim 24 is amended to read "...said functional layer is an adhesive anisotropic film attached to the transfer tool" to clarify the subject matter as claimed. Applicants respectfully submit that the amended claim is clear and definite and respectfully request the withdrawal of the claim rejection.

### **Rejections under 35 U.S.C. § 102**

*Claims 1, 9-12 and 28-29 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S.*

*Patent No. 6,511,048 to Bayan, et al. ("Bayan").*

#### **Independent claims 1 and 28**

Claim 1 and claim 28 both include the limitation "... a relocating tool having a first plurality of receptor sites having a plurality of functional blocks deposited therein ..."  
(emphasis added).

Bayan describes an off-load system for semiconductor devices. In particular, Bayan describes a system having an array of suction tubes which are used to pick up semiconductor devices from a matrix. Bayan goes on to describe the various configurations of semiconductor devices on a matrix in which the system can pick up individually or simultaneously. The office action on page 4 equates Applicants' "relocating tool having a plurality of receptor sites" to be same as the matrix (feature 60). Applicants respectfully traverse and disagree. The matrix in Figure 1 of Bayan, is further described in at least Col. 4 lines 39 – 49, Col. 3 lines 28-32, Figures 4 – 5D and Col 6 lines 36-60. No where in Bayan is the matrix described

to have “a plurality of receptor sites”. In fact, the matrix is generally illustrated to be a flat plate with columns and rows (see Figures 1, 4, 5A-5D). In one embodiment, the matrix is described to be an array of pins supported upon a pin-board to raise the semiconductor devices to be picked up so the devices may be brought into closer proximity with the pick-up devices to facilitate the pickup operation (see Col. 3 lines 28-34). In fact, this latter embodiment teaches away from a relocation tool having “a first plurality of receptor sites having a plurality of functional blocks deposited therein” where the functional blocks are in fact deposited inside of receptor sites.

For at least this reason, Applicants respectfully submit that Bayan fails to anticipate each and every limitation as claimed and respectfully request the withdrawal of the claim rejection.

#### Dependent claims 9-12 and 29

Claims 9-12 and 29 depend from claims 1 and 28 and thus incorporate all the limitations contained therein. For at least this reason, Applicants respectfully submit that claims 9-12 and 29 are not anticipated by Bayan and respectfully request the withdrawal of the claim rejections.

***Claims 28-29 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,742,561 to Nam, et al. (“Nam”).***

#### Independent claim 28

Nam describes an apparatus for die bonding a semiconductor chip to substrate using a non-conductive adhesive tape. Nam’s describes an apparatus having a lead frame on which a

first semiconductor chip is bonded, and a roll of non-conductive adhesive tape is cut then transferred by a tape pick-up tool and bonded onto the lead frame at a die bonding station. A second semiconductor chip from a chip provider, such as a wafer table, is picked up by a die pick-up tool which places the second semiconductor chip onto the adhesive tape bonded onto the lead frame where a presser applies a pressure onto the second semiconductor chip to attach the second chip onto the non-conductive adhesive tape (see col. 4 lines 30-56).

The office action on page 6 equates the wafer table (feature 56) in Figure 4 of Nam to be same as a relocation tool “having a first plurality of receptor sites”. Applicants respectfully traverse and disagree. Nam fails to describe a structure that is similar to the relocation tool having a plurality of receptor sites as claimed. In fact, the wafer table is seen in Figure 4 as a flat piece of wafer. Nam does not describe any structure having “a plurality of receptor sites” similar to Applicants’ relocation tool as claimed.

Therefore, Applicants respectfully submit that Nam does not anticipate every limitation as claimed and respectfully request the withdrawal of the claim rejections.

#### Dependent claim 29

Claim 29 depend from claim 28 and thus incorporate all the limitations contained therein. For at least this reason, Applicants respectfully submit that claim 29 is not anticipated by Nam and respectfully request the withdrawal of the claim rejections.

#### **Rejections under 35 U.S.C. § 103**

***Claims 1, 3, 6-7, 9-12 and 16-17 are rejected under 35 U.S.C. §103(a) as being***

*unpatentable over Nam, in view of Bayan.*

Independent claims 1 and 16

Claims 1 and 16 both include the limitation “... a relocation tool having a first plurality of receptor sites having a plurality of functional blocks deposited therein ...” (emphasis added).

Bayan and Nam are described above and neither reference anticipates the limitation of a relocation tool having a first plurality of receptor sites. Bayan and Nam fail to cure the deficiency of each other. Further, the combination of Bayan and Nam fails to teach or suggest the limitation as claimed. Therefore, Applicants respectfully submit that claims 1 and 16 are not obvious in view of the combination of Nam and Bayan and respectfully request the withdrawal of the claim rejections.

Dependent claims 3, 6-7, 9-12 and 17

Claims 3, 6-7, 9-12 and 17 depend from claims 1 and 16 and thus incorporate all the limitations contained therein. For at least this reason, Applicants respectfully submit that the combination of Nam and Bayan fails to teach or suggest all the limitations in claims 3, 6-7, 9-12 and 17 and respectfully request the withdrawal of the claim rejections.

*Claims 1, 9, 12 and 16-22 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,765,277 to Jin, et al. (“Jin”), in view of Bayan.*

Independent claims 1 and 16

Claims 1 and 16 both include the limitation “... a relocation tool having a first plurality of receptor sites having a plurality of functional blocks deposited therein ...” (emphasis added).

Bayan is described above and does not anticipate the limitation of a relocation tool having a first plurality of receptor sites. Jin describes a die bonding apparatus for separating a chip from a tested wafer including a plurality of chips and attaching the chip to a lead frame having a chip-transferring part for separating the chip from the wafer. Jin does not describe a relocation tool having a first plurality of receptor sites and thus fails to cure the deficiency of Bayan. The combination of Jin and Bayan also fails to teach or suggest the limitation of a relocation tool having a first plurality of receptor sites.

Therefore, Applicants respectfully submit that claims 1 and 16 are not obvious in view of the combination of Jin and Bayan and respectfully request the withdrawal of the claim rejections.

Dependent claims 9, 12 and 17-22

Claims 9, 12 and 17-22 depend from claims 1 and 16 and thus incorporate all the limitations contained therein. For at least this reason, Applicants respectfully submit that the combination of Jin and Bayan fails to teach or suggest all the limitations in claims 9, 12 and 17-22 and respectfully request the withdrawal of the claim rejections.

***Claim 2 is rejected under 35 U.S.C. §103(a) as being unpatentable over Nam in view of Bayan as applied to claims 1, 3, 6, 7, 9-12 and 16-17 above, and further in view of U.S. Patent No. 6,193,136 to Higashi, et al. ("Higashi").***

Claim 2 depends from claim 1 and thus incorporates all the limitations contained therein. Bayan and Nam are described above and neither reference anticipates the limitation of a relocation tool having a first plurality of receptor sites. Bayan and Nam fail to cure the deficiency of each other.

Higashi describes a component mounting method and apparatus having a vibration device to apply ultrasonic vibrations to the component for generating friction between the electrical bonding areas. Higashi does not describe a relocation tool having a first plurality of receptor sites. Thus, Higashi fails to cure the deficiency of Nam and Bayan. The combination of Higashi, Nam and Bayan also fail to teach or suggest the limitation of a relocation tool having a first plurality of receptor sites. For at least the reason set forth, Applicant respectfully submit that claim 2 is not obvious in view of the combination of Nam, Bayan and Higashi and respectfully request the withdrawal of the claim rejection.

***Claims 4-5 are rejected under 35 U.S.C. §103(a) as being unpatentable over Nam, in view of Bayan, as applied to claims 1, 3, 6, 7, 9-12 and 16-17 above, and further in view of U.S. Patent No. 6,261,871 to Langari, et al.***

Claims 4-5 depend from claim 1 and thus incorporate all the limitations contained therein. Bayan and Nam are described above and neither reference anticipates the limitation of a relocation tool having a first plurality of receptor sites. Bayan and Nam fail to cure the deficiency of each other.

Langari describes a method and structure for temperature stabilization in flip chip technology. Langari does not describe a relocation tool having a first plurality of receptor sites. Thus, Langari fails to cure the deficiency of Nam and Bayan. The combination of Langari, Nam and Bayan also fail to teach or suggest the limitation of a relocation tool having a first plurality of receptor sites. For at least the reason set forth, Applicant respectfully submit that claims 4-5 are not obvious in view of the combination of Nam, Bayan and Langari and respectfully request the withdrawal of the claim rejections.

***Claims 8 and 13-15 are rejected under 35 U.S.C. §103(a) as being unpatentable over Nam, in view of Bayan as applied to claims 1, 3, 6, 7, 9-12 and 16-17 above, and further in view of U.S. Patent No. 5,904,545 to Smith, et al. ("Smith").***

Claims 8, 13-15 depend from claim 1 and thus incorporate all the limitations contained therein. Bayan and Nam are described above and neither reference anticipates the limitation of a relocation tool having a first plurality of receptor sites. Bayan and Nam fail to cure the deficiency of each other.

Smith describes an apparatus for fabricating self-assembling microstructures. Smith describes an apparatus for assembling microstructures onto a substrate through fluid transport. While Smith describes a substrate having at least one recessed region, Smith fails to describe having a transfer tool to remove a plurality of functional blocks from the relocating tool and deposit the plurality of functional blocks into a second plurality of receptor sites.

In fact, Smith's disclosure is concerned with assembly of shaped micro-structures via fluidic transport. There is a no motivation to combine Smith with Nam and Bayan because Smith's method of assembly teaches away from Nam and Bayan which closely resemble pick



and place, and Nam and Bayan teach away from fluidic transport disclosed by Smith.

Even if the combination of Smith and Nam and Bayan are possible, the resulting combination will be different than the limitations as claimed and the advantage of the speed and efficiency of fluidic transport will be negated and so will the benefit of the precision of the Nam and Bayan disclosures. Thus there is no motivation to combine Smith, Nam and Bayan.

*Claims 23 and 24 are rejected under 35 U.S.C. §103(a) as being unpatentable over Jin, in view of Bayan and U.S. Patent No. 6,245,597 to Fernandez (“Fernandez”).*

Independent claim 23

Claim 23 includes the limitation “... a relocation tool having a first plurality of receptor sites having a plurality of functional blocks deposited therein ...” (emphasis added). Jin and Bayan are described above and neither reference anticipates the limitation of a relocation tool having a first plurality of receptor sites. Jin and Bayan fail to cure the deficiency of each other.

Fernandez describes a method for reducing die cracking in integrated circuits. Fernandez does not describe a relocation tool having a first plurality of receptor sites. Thus, Fernandez fails to cure the deficiency of Jin and Bayan. The combination of Fernandez, Jin and Bayan also fail to teach or suggest the limitation of a relocation tool having a first plurality of receptor sites. For at least the reason set forth, Applicant respectfully submit that claim 23 is not obvious in view of the combination of Fernandez, Jin and Bayan and respectfully request the withdrawal of the claim rejections.

Dependent claim 24

Claim 24 depends from claim 23 and thus incorporates all the limitations contained therein. For at least this reason, Applicants respectfully submit that the combination of Jin, Bayan and Fernandez fails to teach or suggest all the limitations in claim 24 and respectfully request the withdrawal of the claim rejection.

***Claims 25-27 are rejected under 35 U.S.C. §103(a) as being unpatentable over Jin, in view of Bayan and Fernandez as applied to claims 23-24 above, and further in view of U.S.***

***Patent No. 6,090,474 to Johansson, et al. ("Johansson").***

Claims 25-27 depend from claim 23 and thus incorporate all the limitations contained therein. Jin, Bayan, and Fernandez are described above and neither reference anticipates the limitation of a relocation tool having a first plurality of receptor sites. Jin, Bayan, and Fernandez fail to cure the deficiency of each other.

Johansson describes flowable compositions and use in filling vias and plated through-holes. Johansson does not describe a relocation tool having a first plurality of receptor sites. Thus, Johansson fails to cure the deficiency of Jin, Bayan, and Fernandez. The combination of Johansson, Jin, Bayan, and Fernandez also fail to teach or suggest the limitation of a relocation tool having a first plurality of receptor sites. For at least the reason set forth, Applicant respectfully submit that claims 25-27 are not obvious in view of the combination of Johansson, Jin, Bayan, and Fernandez and respectfully request the withdrawal of the claim rejections.

**Conclusion**


In view of the foregoing, Applicant respectfully submits the present application is now in condition for allowance. If the Examiner believes a telephone conference would expedite or assist in the allowance of the present application, the Examiner is invited to call the undersigned attorney at (408) 720-8300.

Please charge Deposit Account No. 02-2666 for any shortage of fees in connection with this response.

Respectfully submitted,

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